Trouble Shooting Guide, Standard

Applicable for A2618s and A2618sc

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1 Explanations

1.1 Component Placement Reference

For component placement see doc.1078-2/FEA 209 544/25

1.2 Service Test Menu

Code to enter Service Test Menu, > * < < * < *

1.3 External connectors

External units are connected to the transceiver by means of an 11-pin connector on the bottom of the phone.
The pin numbering is starting from the right when looking on the system connector with the front up.

Pin	Signal	Function
1	DCIO	DC+ pole for charging phone battery and external accessory powering.
2	GND	Digital GND and DC return.
3	VPPFLASH	Flash memory Vpp /Service.
4	GND	Audio signal GND, 0 V reference.
5	CFMS_PHFS	Accessory Control From Mobile Station serial (ACB) communication/ Portable Hands Free Sense.
6	CTMS	Accessory Control To Mobile Station serial (ACB) communication.
7	DFMS	Data From Mobile Station, serial bus communication.
8	DTMS	Data To Mobile Station, serial bus communication/ External accessory Power on
9	CTS_ON	Mobile station Clear To Send/ ON REQuest
10	AFMS/RTS	Audio from Mobile station/ Ready To Send
11	ATMS	Audio to Mobile station

1.4 Abbreviations

B: Crystal.

C: Capacitor.

D: Digital circuit.

H: Buzzer, LED, and pads for display.

J: Connector.

L: Coil.

N: Analogue circuit, power amplifier at some units.

R: Resistor.

S: Keyboard pads.

V: Transistor, diode.

X: Contact surface on the circuit board.

Z: Filter.

DCIO: DC voltage through the system connector for charging.

GND: Ground.

RTC: Real Time Clock, the clock that keeps track of time.

SIMCONCLK: Signal from the processor used for communication to SIM, clock-signal.

SIMDCONAT: Signal from the processor used for communication to SIM, data-signal.

SIMCONRST: Signal from the processor used for communication to SIM, reset-signal.

SIM VCC: Feed voltage for SIM, 5.0 ± 0.10 $V_{DC.}$

VBATT: Battery voltage, 3.70 ± 0.5 $V_{DC.}$

VPPFLASH: Voltage to erase and program the memory. 12.0 ± 0.60 V_{DC}

VCORE: DC voltage for the processor 2.4 ± 0.10 $V_{DC.}$

VCORE DSP: DC voltage for the DSP 1.8 ± 0.10 $V_{DC.}$

VDIG: DC voltage for the processor and memory, 2.75 ± 0.10 $V_{DC.}$

VLCD: DC voltage for the display that controls the contrast, the voltage is generated in the display-assembly.

VHOM: DC voltage for the radio part except the synthesiser, 3.8 ± 0.20 $V_{DC.}$

VRAD: DC voltage for the radio part, 3.8 ± 0.20 $V_{DC.}$

V380B: DC voltage for the radio part, 3.8 ± 0.20 $V_{DC.}$

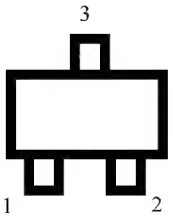
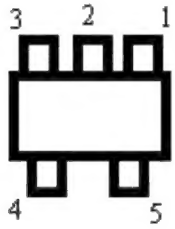
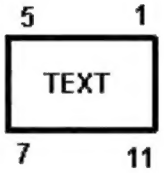
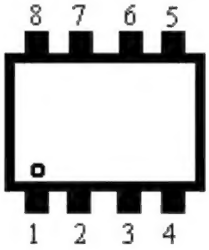
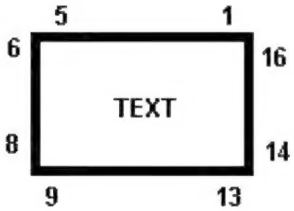
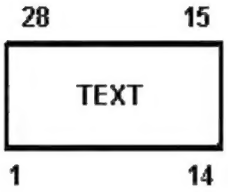
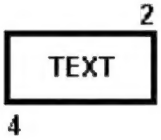
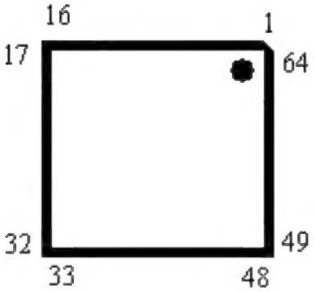
VRTC: DC voltage for the real time clock, 2.35 ± 0.15 $V_{DC.}$

VVCO: DC voltage for the synthesiser, 3.8 ± 0.10 $V_{DC.}$

I^2C: Communications standard for two-way communication using only 2 wires.

Unit: What the mobile telephone later in this document will be called.

1.5 Pin placement

		
Single diode (PIN diode)	Electrolytic capacitor.	Double diode or single transistor
		
Five pin circuit (usually voltage regulator).	Double transistor.	N392
		
Eight pin circuit.	N200	N400
		
Crystal		N300

2 Network Problems

2.1 Find out if the fault is RX- or TX-related

Connect the unit (with signalling program) to a GSM test instrument and try to get SERV at an input signal strength of -68.5 dBm.

If the unit does not get SERV, go to section 2.2.
If the unit gets SERV, go to section 2.4.

2.2 The phone does not get SERV

Open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Make sure that the antenna connector W1 not is mechanically damaged, dirty or oxidised. Clean it if needed.

Check the soldering of N200, N201, Z200 and Z201.

Measure the resistance over L202, L203, L204 and L206 (0 ohm).
Measure the resistance over L200, L201 (0 ohm) and R202 (270 ohm).

Replace if incorrect.

Retry to get SERV again with the settings mentioned above.

If the unit gets SERV, go to section 2.4.
If the unit still does not get SERV, the fault probably is within the LO part, or the losses in the signal path are too large.

It is also possible that the feed voltages are incorrect, section 2.3.

Open the unit.
Power up the board and start it by pressing the On/Off key.

Measure the VRAD-voltage on C705, measure on the side close to C706.
If the voltage is incorrect, send the unit on according to the local company directives.

Measure the V380B-voltage on C706, measure on the side close to R705.
If the voltage is incorrect, send the unit on according to the local company directives.

If the voltage is correct, measure the VVCO-voltage on pin 5 of N701.
If the VVCO-voltage is correct, measure the resistances over R362 (18 kohms) and R392 (82 ohms).
If the resistances are incorrect, replace the corresponding component.

If both the resistances are correct, go to section 2.3.

If the VVCO-voltage is incorrect, measure the voltage at L700 3.7 ± 0.5 $V_{DC,}$ measure on the pin close to R705.
If the voltage on L700 is incorrect, on the pin close to R705, measure the resistance of L700 (0 Ohm).
If the resistance is correct, send the unit on according to the local company directives.

If the resistance is too high, replace L700.

If the voltage on pin 1 of N701 is incorrect, measure the resistance of R861 (0.0 ohm) and R704 (0.0 ohm).
If the resistance is correct, send the unit on according to the local company directives.

If it is incorrect, replace the faulty resistor.

If the voltage on V705 is 3.7 V_{DC}, on the pin close to R705, replace V705.
Otherwise send the unit on according to the local company directives.

2.3 Check the feed voltages

Measure the VHOM-voltage on N300: 5, measure at C200 and N300: 13, measure at C200.
If the VHOM-voltage is incorrect, measure the resistance of Z702 (0,15 ohm).
If the resistance is incorrect, replace Z702.

Also measure the resistance of C200, C201 (>15 kohms).
If the resistance is lower replace the faulty component.

Measure the VVCO-voltage on N300: 22, 24,33,46, 47, 57, 62.
If the VVCO-voltage is incorrect, measure the resistance of Z701 and Z300 (0,15 ohm).
If the resistance is incorrect, replace the faulty component.

Also measure the resistance of C340, C341, C342, C343, C372, C373, C374 (>100 kohms).
If the resistance is lower replace the faulty component.

Measure the VVCO-voltage on N301: 1 and 2, measure the voltage on R300, on the pin close to C304.
If the voltage is incorrect, measure the resistance of R300 (10 ohms) and L302 (0.5 ohms).
If the resistance is incorrect, replace the faulty component.

Measure the VVCO-voltage on R331, measure on the pin close to C330.
If the voltage is incorrect, measure the resistance of R331 (10 ohms).
If the resistance is incorrect, replace R331.

If the fault remains, send the unit on according to the local company directives.

Connect a call at –68.5dBm input signal and power level 5.
If you are able to connect a call, go to section 2.5.

If you are not able to connect a call, open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Make sure the antenna connector (W1) is not incorrectly soldered, mechanically damaged, dirty or oxidised. Clean, re-solder or replace it if needed.
Check the soldering of N392, N391, and N390.

Try to connect a call again.

If you are able to connect a call, go to section 2.5.
If you still are not able to connect a call, send the unit on according to the local company directives.

2.4 Read the RX-level while a call is connected

Make sure the output power is 31-35 dBm, and the RX-level value is 40 - 46 steps.
If that is correct there is probably nothing wrong with the unit.

Lower the input signal to –102 dBm, and make sure the RX-level value is 6-12 steps and the RX-quality value is 0-2 steps.
If RX-level and RX-quality is correct, try running the unit through the test again.
If the unit passes the test but you are not able to connect a call towards the "real" net, make sure the unit has not been **locked out of the system due to theft**.

If RX-level is correct and Rx-quality is high, send the unit on according to the local company directives.

If the RX-level value is too high the unit needs to be calibrated.

If the RX-level value is less than 38 steps at an input signal of –68.5dBm
or less than 5 steps at an input signal of –102dBm then the fault is RX-related.

Open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Make sure the antenna connector (W1) is not incorrectly soldered, mechanically damaged, dirty or oxidised. Clean, re-solder or replace it if needed.
Check the soldering of N200, Z200, Z201 and N201.

Measure the resistance over L202 and L204 (0.15 Ohm).
Replace if incorrect.

Remove L203, L206 and L205, then measure the resistance from pin 2 of N200 to ground (>100 kohms). The resistance usually becomes only a few ohms when N200 is faulty.
If the resistance is incorrect, replace N200 and mount L203, L206 and L205.

If the fault still remains, send the unit on according to the local company directives.

3 On/Off Problems

Make sure the battery connector is intact, clean and fully functional.

Measure the resistance from VBATT to ground on X1:1.
It should be more than 20 kohms. If it is less, usually only a few ohms there is probably a shortcut in N400.
Replace it if needed.

Make sure there is no liquid damage at the system connector.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Insert a correct battery and press the On/Off key.
If the unit starts without the On/Off key being pressed, go to section 3.1.

If the unit starts, check the charging function by connecting a charger to the system connector.

If the charging function is faulty, go to chapter 6 ("Capacity/Charging problem").

If the unit starts (lights up the background illumination, asks for SIM/Pin, seeks net…) there is probably nothing wrong with the unit or the fault is intermittent.

If the unit does not start, connect a dummy battery to the power-supply with an Ampere-meter, and keep the On/Off key pressed.
If the unit consumes 15-30mA, go to section 3.2.
If the unit consumes less than 15mA, go to section 3.3.
If the unit consumes 0 mA, go to section 3.4.

3.1 Starts immediately after connecting a battery

Open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Replace the flex-film.
If the fault remains, send the unit on according to the local company directives.

3.2 Consumes 15-30 mA

Try to flash the unit.

If the fault remains, open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

If it is impossible to flash the unit, measure the resistance of R601 (10 kohms).
If the resistance is incorrect, replace R601.

If the resistance is correct make sure that the resistance of C603 is more than 40 kohms.
If the resistance of C603 is less, replace V801.
If that does not help, replace C603.

If the resistance is correct, and it still is impossible to flash the unit, send the unit on according to the local company directives.

3.3 Consumes less than 15 mA

Open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Power up the board and start it by pressing On/Off key.

Measure the VDIG-voltage on C723, measure on the side close to N700.
If the voltage is incorrect measure that the resistance of C723 (>40 kohms).
If the resistance is correct, send the unit on according to the local company directives.

If the resistance is incorrect then replace C723.

Measure the VCORE.DSP -voltage on C725, measure on the side close to N700.
If the voltage is incorrect, measure the resistance of C725 (>200 kohms).
If the resistance is incorrect, replace C725.

If the resistance is correct, send the unit on according to the local company directives.

If VDIG and VCORE.DSP are correct measure the VDSP-voltage, on N720 pin 5.
If the VDSP-voltage is incorrect, replace N740.
If VCORE.DSP is incorrect after the replacement, measure the resistance of R705 (0.56 ohm), and C740 (>20 kohms).
If the resistance is incorrect, replace R705 and C740.

If the fault still remains, send the unit on according to the local company directives.

3.4 Consumes no current

Open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Make sure X1 not is damaged or incorrectly soldered.
Replace the flex-film.

Power up the board.

Measure the VBATT-voltage on C400, measure on the side closest to the edge of the board.
If the VBATT-voltage is correct, measure the voltage on pin 2 of V850 2.7 ± 0.10 V_{DC}.
If the voltage is correct, replace V850.

If the voltage is incorrect, send the unit on according to the local company directives.

If the VBATT-voltage on C400 is incorrect, replace X1.

If the fault still remains, send the unit on according to the local company directives.

4 Audio Problems

Connect a call from the unit that is to be tested, to a fully functional phone.
Check that the microphone and the earphone of the unit works correctly.

If the unit sounds strange (there is noise, distortion or the sound is "chopped"),
send the unit on according to the local company directives.

Connect a hands-free unit to the system connector of the unit. Check the functionality of the hands-free.

If it is only the earphone of the unit, that has a low or no sound, go to section 4.1.
If both the hands-free speaker and the earphone of the unit are out of order,
send the unit on according to the local company directives.
If the sensitivity of the microphone is poor, (little or no sound in the reference phone)
go to section 4.2.
If the hands-free microphone does not work, go to section 4.3.
If the hands-free speaker is out of order, go to section 4.4.
If both the speaker and the microphone of the hands-free are out of order, go to section 4.5.

4.1 Earphone out of order

If the earphone is out of order, open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Replace the earphone, according to replacement instructions. Test the unit again.
If the fault remains, replace the elastomer according to replacement instructions.

If the fault still remains, send the unit on according to the local company directives.

4.2 Microphone out of order

If the microphone is out of order, open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Replace the microphone according to replacement instructions. Test the unit again.

Make sure the connector-pads at the board are not mechanically damaged or dirty.

If the fault remains measure the resistance of R501 (0 ohm), R502, R503, (1 kohm) and R500 (22 kohms).
If all the resistances are correct, replace C501 and C502.

If the fault still remains, send the unit on according to the local company directives.

4.3 Hands-free microphone out of order

The fault appears when the audio path is interrupted somewhere between the hands-free microphone (connected through the system connector) and the input of N500.
The audio path is shown in *Fig. 4.1.*

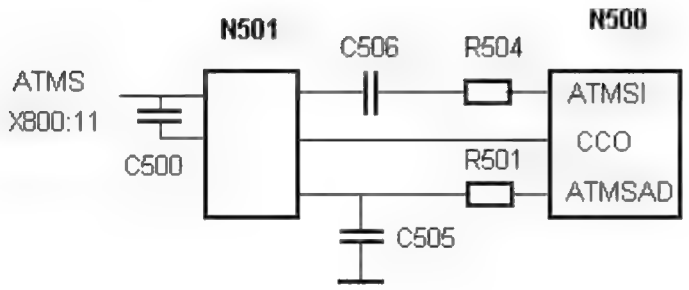


Fig. 4.1

Open the unit and check for liquid damage, especially around the system connector.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Make sure the system connector is not damaged or incorrectly soldered.

Make sure all the components in *Fig. 4.1.* (N501, C500, C505, C506, R501 and C504) are correctly mounted on the board.

Measure the resistance of C500 (>100 kohms), C505 (>10 kohms), C506 (>1 Mohm), R501 (0 ohm), R504 (1 kohm).
If any component is incorrect, replace it.

If the fault still remains, send the unit on according to the local company directives.

4.4 Hands-free speaker out of order

The fault arises when the audio path is interrupted somewhere between the output of N500 and the hands free microphone (connected through the system connector).
The audio path is shown in *Fig. 4.2.*

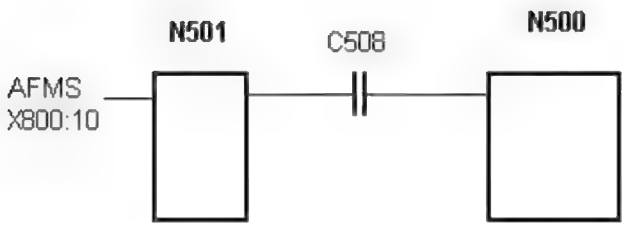


Fig. 4.2

Open the unit and check for liquid damage, especially around the system connector.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Make sure the system connector is not damaged or incorrectly soldered.

Measure the resistance of C508 (>15 kohms).
If the resistance is incorrect, replace it.

If the fault still remains, send the unit on according to the local company directives.

4.5 The hands-free microphone and speaker out of order

Replace X800.

If the fault still remains, send the unit on according to the local company directives.

5 Display/Illumination Problems

5.1 Display

Start the unit by pressing the On/Off key.
If the unit does not start, go to chapter 3 ("On/Off Problems").

Use the Service Test menu.
Choose "Display" and check the chess pattern.

If the display is missing one or more of the segments, go to section 5.1.1.
If there is nothing displayed on the display, go to section 5.1.2.

5.1.1 Segments are missing

Open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Replace the display and the elastomer.

5.1.2 Nothing shows on the display

Open the unit and check for liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Replace the display and the elastomer, and check if the display works correctly.
If the fault remains, measure the voltage at X850: 5, 2.7 ± 0.10 V_{DC}. (RESET) *Fig .5.1.*
If the voltage is incorrect, measure the resistance of R864 (1,0 kohm).
If the resistance is incorrect, replace R864.

If the voltage still is incorrect, send the unit on according to the local company directives.

Measure the voltage at X850: 6, 2.7 ± 0.10 V_{DC}. (VDIG) *Fig .5.1.*
If the voltage is incorrect, measure the resistance of C850 (>10 kohms) and C852 (>100 kohms).
If the resistance is too low, replace the incorrect component.

If the voltage still is incorrect, send the unit on according to the local company directives.

Measure the voltage on X850: 7, 2.7 ± 0.10 V_{DC}. (I^2CDAT) *Fig. 5.1.*
If the voltage is incorrect, measure the resistance of R850 (470 ohm).
If the resistance is incorrect, replace R850.

If the voltage still is incorrect, send the unit on according to the local company directives.

Measure the voltage on R801 (VDIG 2.7 ± 0.10 V_{DC}).
If the VDIG voltage is incorrect, go to chapter 2 ("On/Off Problems").

If the voltage is correct, measure the resistance of R801. (3,3 kohms).
If the resistance is incorrect, replace R801.

Measure the voltage on X850: 8, 2.7 ± 0.10 V_{DC}. (I^2CCLK) *Fig .5.1.*
If the voltage is incorrect, measure the resistance of R859 (470 ohm).
If the resistance is incorrect, replace R859.

Measure the voltage on R802 (VDIG voltage, 2.7 ± 0.10 V_{DC}).
If the VDIG voltage is incorrect, go to chapter 2 ("On/Off Problems").

If the voltage is correct, measure the resistance of R802 (3.3 kohms).
If the resistance is incorrect, replace R802.

Measure the voltage on X850:10, 0.0 V_{DC}. (VLCD) *Fig .5.1.*
(The voltage is generated in the display-assembly and can not be measured)

If the fault still remains, send the unit on according to the local company directives.

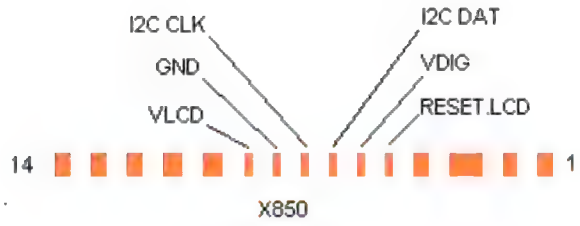


Fig .5.1

5.2 Illumination

Use the Service Test menu.
Choose LED/Illumination and check that the illumination lights.

If the LCD-illumination does not lights, go to section 5.2.1.
If the keyboard illumination does not lights, go to section 5.2.2.
If the top indicator does not lights green, go to section 5.2.3.

5.2.1 LCD illumination glows faintly or does not glow at all

Open the unit and check for liquid damage.
No action should be taken for liquid damaged units, send the unit on according to the local company directives.

Make sure that the flex-film and the elastomer are correctly mounted and mechanically intact.

Give the board power and start it up.
If the LCD-leds are not lit, measure the voltage on X850:3, 3.7 ± 0.50 V_{DC} (VBATT)
Fig .5.1.
If the voltage on X850:3 is 0 V, there is a foil damage, send the unit on according to the local company directives.

If the voltage on X850: 3 is correct, measure that there is 0.75V ± 0.10 $V_{DC,}$ on V853:1 when the illumination is activated, if not measure at R854 (1.0 kohm) 2.70V ± 0.10 $V_{DC,}$ measure at the side close to D600.

If the voltage at R854 is correct measure the resistance of R R854 (1.0 kohm).
If the resistance is incorrect, replace R854.

If the voltage at R854 is incorrect the fault probably is due to D600.

NOTE! Since the LEDs only are lit for ~10sec.
You will need to activate a key before measuring.

If everything is correct change the flex-film and the elastomer.

If the problem still remains, send the unit on according to the local company directives.

5.2.2 Keyboard illumination missing or faintly glowing

Open the unit and check for liquid damage.
No action should be taken for liquid damaged units, send the unit on according to the local company directives.

Make sure that the flex-film and the elastomer are correctly mounted and mechanically intact.

If the KEY-led is not lit, measure the voltage on X850:3, 3.7 ± 0.50 V_{DC} (VBATT) *Fig .5.1.*
If the voltage on X850:3 is 0 V there is a foil damage, send the unit on according to the local company directives.

If the voltage on X850:3 is correct, measure that there is 0.75V ± 0.10 V_{DC} on V854: 1,when the illumination is activated, if not measure at R854 (1.0 kohm) 2.70V ± 0.10 V_{DC}, measure at the side close to D600.

If the voltage at R854 is correct measure the resistance of R854 (1.0 kohm).
If it is incorrect, replace R854.

If the voltage at R854 is incorrect the fault probably is due to D600.

NOTE! Since the LEDs only are lit for ~10sec.
You will need to activate a key before measuring.

If everything is correct change the flex-film and the elastomer.

If the problem still remains, send the unit on according to the local company directives.

5.2.3 Green top indicator out of order

Open the unit and check for liquid damage.
No action should be taken for liquid damaged units, send the unit on according to the local company directives.

Make sure that the flex-film and the elastomer are correctly mounted and mechanically intact.

Measure the voltage on X850: 14, 2.7 ± 0.10 V_{DC} (VDIG) *Fig .5.1.*

Measure the voltage on X850: 13, 2.7 ± 0.10 V_{DC} (TOPLED). *Fig .5.1.*
If the voltage is incorrect, measure at R860 2.70V ± 0.10 V_{DC}, at the side close to D600.
If the voltage at R860 is correct. measure the resistance of R860 (150 ohms).
If it is incorrect, replace R860.

If the voltage at R860 is incorrect the fault probably is due to D600.

NOTE! The signal is low when activated.

If everything is correct change the flex-film and the elastomer.

If the fault still remains, send the unit on according to the local company directives.

6 Capacity/Charging Problems

Make a visual check of the battery connector and the system connector.
Replace them if needed.

Insert a charged battery into the unit and start it up by pressing the On/Off key.
Turn the unit on and connect a charger to the system connector to make sure if the fault remains.

Open the unit and check for liquid damage.
No action should be taken for liquid damaged units, send the unit on according to the local company directives.

Measure the resistance of R727 (0.1 ohm).
If the resistance of R727 is incorrect, replace R727.

If the resistance of R727 is correct, measure the resistance of R726 (0 ohm).
If the resistance of R726 is incorrect, replace R726.

If the resistance of R726 is correct, replace V720 and C737.

If the fault still remains, send the unit on according to the local company directives.

7 SIM Problems

7.1 Definition of a SIM-problem

Insert a functional SIM-card and a charged battery into the phone.

If **"Wrong card"** or **"Insert correct card"** is displayed on the display when starting the phone it means that the phone is SIM-locked.

NOTE! If the phone shall be SIM-locked, make sure that a correct SIM-card is used.

If the fault remains, send the unit on according to the local company directives.

If the phone displays **"Phone lock"** on the display it means that the customer has locked the phone with a personal code. It will be unlocked in the reset program. (Available in the Built Swap process)

If **"PIN:"** or **"Enter PIN:"** is displayed, it means that the SIM-card has been locked with a personal code.

It is only SIM-fault if **"Insert card"** or **"Card error"** is displayed.

7.2 Type of fault

Open the unit and check for liquid damage.
No action should be taken for liquid damaged units, send the unit on according to the local company directives.

Replace J800.

Measure the voltage at J800:1, 5.0/3.0 ± 0.10 V_{DC}. (SIMVCC).
If the voltage is incorrect, measure the resistance from pin 1 to pin 5 of J603 (>1 Mohm).
If the resistance is incorrect, replace C804, C809 and C805.
If the fault remains, replace V805.

If the voltage on pin 1 of J800 is correct, measure the resistance of R804 (10 kohms).
If the resistance is incorrect, replace R804.

Measure the voltage at J800: 2, 5.0/3.0 ± 0.10 V_{DC}. (SIMCONRST).
If the voltage is incorrect, measure the resistance of R805 (33 ohms).
If the resistance is incorrect, replace R805.

If the voltage at J800: 2 still is incorrect, measure the resistance from pin 2 to pin 5 of J603 (>1 Mohm).
If the resistance is incorrect, replace C806.
If the fault remains, replace V805.

Measure the voltage at J800: 3, 2.5/1.5 ± 0.10 V_{DC}. (SIMCONCLK).
If the voltage is incorrect, measure the resistance of R806 (33 ohms). I
f the resistance is incorrect, replace R806.

If the voltage at J800: 3 still is incorrect, measure the resistance from pin 3 to pin 5 of J603 (>1 Mohm).
If the resistance is incorrect, replace C807.
If the fault remains, replace V805.

Measure the voltage at J800: 7, 5.0/3.0 ± 0.10 V_{DC}. (SIMCONDAT).
If the voltage is incorrect, measure the resistance of R807 (33 ohms) and R804 (10 kohms).
If the resistance is incorrect, replace the faulty component.

If the voltage at J800: 7 still is incorrect, measure the resistance from pin 7 to pin 5 of J603 (>1 Mohm).
If the resistance is incorrect, replace C808.
If the fault remains, replace V805.

NOTE! The measurements mentioned above must be done with the SIM-card connected.

Measure the voltage at J800: 9, 0.7 $V_{DC,}$ when the SIM-holder is open. (SIM_OFF).
If the voltage is incorrect, measure the resistance of R820 (3.3 kohms).
If the resistance is incorrect, replace R820.

NOTE! The measurement mentioned above must be done with the SIM-card disconnected.

If the fault still remains, send the unit on according to the local company directives.

8 Key Problems

Start up the unit by pressing the On/Off key.

If the unit does not start at all, go to chapter 3 ("On/Off Problems").
If the unit starts but none of the keys are functional, go to section 8.1.

Use the Service Test menu and choose "Keyboard".

Every time a key is pressed a text-feedback is displayed, showing the information of which key that was pressed.
All keys including the side key (Volume button) can be tested.
Pressing the "Yes" or "No" key will end the test and return to the Service Menu.

If one or more of the keys are out of order, go to section 8.1.
If only the side key is faulty, go to section 8.2.

8.1 One or more of the keys are out of order

Open the unit and check for liquid damage.
No action should be taken for liquid damaged units, send the unit on according to the local company directives.

Remove the flex-film, clean the pads and mount a new flex-film.
Test the keys again, using the Service Test menu.

If the fault still remains, send the unit on according to the local company directives.

8.2 Side key out of order

Open the unit and check for liquid damage.
No action should be taken for liquid damaged units, send the unit on according to the local company directives.

Check that there is 2.75V ± 0.10 V_{DC} at X851 and X852.
If the voltage is incorrect, measure the resistance of R853 (33 ohms) and R857 (33 ohms).
If the resistance is incorrect, replace the faulty component.

Replace the side-key switch.
Test the keys again, using the Service Test menu.

If the fault still remains, send the unit on according to the local company directives.

9 Alert Problems

Start up the unit by pressing the On/Off key.
If the unit does not start at all, go to chapter 3 ("On/Off Problems").

Use the Service Test menu and choose "Buzzer".
Activate the buzzer using the up/ down arrows.

If there is no sound from the buzzer go to 9.1.

9.1 No sound from the buzzer

Make a general visual inspection for oxidation or corrosion from liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Make sure that the flex-film and the elastomer are correctly mounted and mechanically intact.

Measure the resistance of R851 (1.0 kohm).
If the resistance is incorrect, replace R851.

If everything is correct change the flex-film and the elastomer.

Test the buzzer again, using the Service Test menu.

If the fault still remains, send the unit on according to the local company directives.

10 Data Communication Problems

Make a general visual inspection for corrosion or oxidation from liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

NOTE! All Fax and Data calls are initiated from the appropriate computer software.

If the SIM-card does not support separate fax and data numbers, you need to turn on the data menus.
In menu settings Data menus select YES.

Make sure there is no damage at the system connector, if necessary replace it according to the replacement instructions.

If the fault still remains, send the unit on according to the local company directives.

11 Software Problems

If there are some problems with the response of the key board commands and/ or spelling errors in the menu, that are not related to mechanical damage,
make a software reset, and flash the unit with the latest soft ware.

If the fault still remains, send the unit on according to the local company directives.

12 Other Problems

12.1 RTC

Use the Service Test menu and choose "Real time clock".
Activate with YES.

If it is not correct open the unit, make a general visual inspection for corrosion or oxidation from liquid damage.
No action is to be taken for a liquid damaged unit, send the unit on according to the local company directives.

Check VRTC on C771, 2.40V ± 0.15 V_{DC}, measure on the side close to B800.
If the voltage is incorrect measure the resistance of C771 (>3Mohms).
If the resistance is incorrect, replace C771.
If the fault remains, change B800, C800 and C801.

Test the RTC again, using the Service Test menu.

If the fault still remains, send the unit on according to the local company directives.

13 Revision History

Rev.	Date	Changes / Comments
A	2000-06-13	